



## DEPARTMENT OF ENERGY

### Notice of Availability of Interim Guidance on Packaging, Transportation, Receipt, Management, Short-Term and Long-Term Storage of Elemental Mercury and Request for Comment

**AGENCY:** Office of Environmental Management, U.S. Department of Energy.

**ACTION:** Notice of availability; request for comments.

**SUMMARY:** The U.S. Department of Energy (DOE) provides this Notice of Availability and Request for Comment on a revision to DOE's 2009 *U.S. Department of Energy Interim Guidance on Packaging, Receipt, Management, and Long-Term Storage of Elemental Mercury* (2009 Long-Term Storage Guidance) and *Guidance for Short-Term Storage of Elemental Mercury by Ore Processors* (May 2019) (2019 Short-Term Storage Guidance). DOE specifically seeks input from potentially affected States, pursuant to the Mercury Export Ban Act, as amended, and also invites the public, stakeholders, and other States to provide comments on this draft guidance document.

**DATES:** The 30-day public comment period begins on the date of publication of this Notice and ends on [*INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER*]. Comments may be received through one of the methods described in section C in **SUPPLEMENTARY INFORMATION** section.

**ADDRESSES:** Please direct written comments via one of the following methods:

*Email:* Send comments to *Addemailaddress@em.doe.gov*. Please submit comments in Microsoft<sup>TM</sup> Word, or PDF file format, and avoid the use of encryption.

*U.S. Mail:* Send comments to the following address: David Haught, U.S. Department of Energy, Office of Environmental Management, Office of Waste Disposal (EM-4.22), 1000 Independence Avenue SW, Washington, DC 20585.

**FOR FURTHER INFORMATION CONTACT:** David Haught at

*Addemailaddress@em.doe.gov* or at U.S. Department of Energy, Office of Environmental Management, Office of Waste Disposal (EM-4.22), 1000 Independence Avenue SW, Washington, DC 20585. Telephone: (202) 586-5000.

**SUPPLEMENTARY INFORMATION:**

**A. Background**

The *Mercury Export Ban Act of 2008* (Pub. L. No. 110-414) (MEBA of 2008) as amended by the *Frank R. Lautenberg Chemical Safety for the 21<sup>st</sup> Century Act* (Pub. L. No. 114-182) (Chemical Safety Act of 2016), established requirements pertaining to elemental mercury and certain mercury compounds. Those requirements are located in the *Toxic Substances Control Act* (TSCA) (Pub. L. No. 94-469) and the *Solid Waste Disposal Act of 1965* (Pub. L. 89-272), as amended by the *Resource Conservation and Recovery Act of 1976* (RCRA) (Pub. L. 94-580), and subsequent amendments. Among other things, MEBA of 2008, and the Chemical Safety Act of 2016, collectively referred to herein as MEBA, amended TSCA and RCRA to ban the export of elemental mercury and certain mercury compounds, as well to provide for long-term and interim (*i.e.*, short-term) management and storage of elemental mercury. Specifically, MEBA of 2008 required DOE to designate a facility or facilities for the long-term management and storage of elemental mercury (referred to herein as the Long-Term Elemental Mercury Storage Facility (LTEMSE)) and to issue guidance on recommended standards and procedures for receipt, management, and long-term storage of elemental mercury. 42 U.S.C. 6939(a)(1), (d)(1). The Chemical Safety Act of 2016 provided for interim onsite storage of elemental mercury for certain generators, while awaiting availability of the DOE-designated LTEMSE. 42 U.S.C. 6939f(g)(2)(D). It further required DOE to issue guidance on recommended standards and procedures for management and short-term onsite storage. 42 U.S.C. 6939f(g)(2)(E). DOE, after consultation with the U.S. Environmental Protection Agency (EPA) and appropriate State agencies in potentially affected States, issued the 2009 Long-Term Storage Guidance to

establish standards and procedures for packaging, transportation, receipt, management, and long-term storage of elemental mercury at a DOE-designated facility or facilities, as mandated by MEBA of 2008. Subsequently, the Chemical Safety Act of 2016 amended MEBA of 2008 and provided for onsite interim storage of elemental mercury that is generated as a result of ore processing and/or related pollution control activities and is destined for DOE's LTEMSEF. It required DOE to issue additional guidance for short-term management and storage of elemental mercury by the covered generators. Accordingly, DOE issued the 2019 Short-Term Storage Guidance to address this requirement. Both guidance documents were based on certain planning assumptions specific to those timeframes.

## **B. Revised Guidance Document**

Neither MEBA of 2008 nor the Chemical Safety Act of 2016 mandate revisions to either the 2009 Long-Term Storage Guidance or 2019 Short-Term Storage Guidance documents; however, since their initial issuance, some key underlying assumptions have changed and this revision, which addresses both long-term and short-term storage, reflects those changes, as discussed below. Once finalized and issued, this guidance document will supersede the previously issued 2009 Long-Term Storage Guidance and 2019 Short-Term Storage Guidance. At that time, the previously issued guidance documents will be rescinded. This draft guidance document was developed by DOE after consultation with the EPA, as well as the U.S. Department of Transportation (DOT). Additionally, DOE is specifically seeking input from potentially affected States and will further consult with them, as necessary.

1. Omission of Example Procedures: DOE has determined that it is not appropriate to include example procedures in this guidance document, but rather to defer to the LTEMSEF Operator(s) implementation of its RCRA permit and approved procedures, in conjunction with oversight from their regulator(s). The 2009 Long-Term Storage Guidance included standards and example procedures for receipt, management, and long-term storage of elemental mercury. These procedures, as presented in the various sections of that document, provided annotated

outlines or templates of what was envisioned to be included in the LTEMSEF procedures for all aspects of operation. In general, these templates described suggested processes used to meet the expectations of the applicable standards. However, the Operator(s) of the DOE-designated LTEMSEF, whether a commercial or federal government RCRA-permitted treatment, storage and disposal facility (TSDF), will likely leverage existing hazardous waste procedures, as well as develop new procedures as required for critical operations specific to management of elemental mercury. These procedures must ensure compliance with the applicable federal regulations, as well as state and local regulations. New and/or revised procedures are expected to require review and approval by the regulator(s).

2. Waste Container Contents: The 2009 Long-Term Storage Guidance contained a key assumption that the elemental mercury accepted for storage in the DOE-designated LTEMSEF would be at least 99.5 percent by volume (vol%) elemental mercury. DOE does not carry this assumption forward in the revision. Instead, DOE assumes the generators will comply with applicable RCRA hazardous waste treatment and packaging requirements for highly concentrated elemental mercury, prior to receipt at the DOE LTEMSEF. DOE's interpretation of the term "elemental mercury" used in MEBA, *see, e.g.*, 42 U.S.C. 6939f(a), is that only elemental mercury that was generated in the U.S. and that meets one (or more) of the following criteria is acceptable for storage in its LTEMSEF: (1) U151 coded waste, (2) D009 coded waste generated as a result of Retorting of Mercury (RMERC) treatment technology, and/or (3) mercury that was previously treated to 99.5 vol% elemental mercury.<sup>1</sup>

Based on the expected elemental mercury generator sources and the related factors discussed below, this revised guidance does not assume any DOE-specified minimum purity for elemental mercury accepted for management and storage at the DOE-designated LTEMSEF. Rather, it

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<sup>1</sup> Elemental mercury that has previously been treated to 99.5 vol% elemental mercury will be accepted at the DOE facility. This is included to capture treatment that some generators have already undertaken in order to meet DOE's original 99.5 vol% criteria.

focuses on applicable RCRA and DOT regulations related to compatibility of the waste with the containers.

3. Generators: In general, elemental mercury generators can be grouped into three primary categories: (1) ore processors, (2) commercial recyclers, and (3) chlor-alkali plants. Generation of mercury by ore processors typically occurs due to retorting as part of their required pollution control activities and represents the majority of the potential projected receipts at a DOE-designated LTEMSEF. Similarly, commercial recyclers use retorting to separate elemental mercury from certain waste media, as well as collect commercial/technical-grade elemental mercury from discarded components. Finally, the chlor-alkali plants generate elemental mercury during decommissioning of electrolytic cells that use commercial/technical-grade elemental mercury in the process. All of these generation sources are expected to produce relatively pure elemental mercury waste streams; however, each must be evaluated on a case-by-case basis by the LTEMSEF Operator(s), in consultation with appropriate regulators, to determine they meet one of the three criteria set forth above for acceptability.

4. Containers and Compatibility: The principal objective regarding the containers accepted for storage in the DOE-designated LTEMSEF is that they are lined with, or made of, materials that will not react with and are compatible with the hazardous waste to be stored and do not pose a risk of accelerated corrosion and container failure over time (40 CFR 264/265.172). Currently, there are two primary containers of interest, which are in common commercial use for packaging, transportation, and storage of elemental mercury, that meet the applicable DOT regulations in 49 CFR 173. These include a three-liter (3-L) flask, with a 35-kg capacity, and a one metric ton (1-MT) container. Both are constructed of mild steel and are unlined such that the contents are in direct contact with the container inside surfaces. Due to their prevalent use, these are the assumed predominant containers to be received at the DOE-designated LTEMSEF. Given the uncertain duration for elemental mercury storage, the requirement for compatible materials is particularly relevant and important to safe management of the inventory. The

primary contaminants of concern are those that can exist as secondary phases floating on top of the elemental mercury (*i.e.*, as opposed to the trace amounts of very small particles of metals or amalgams that may be suspended in the elemental mercury). These could be solid phases of mercury salts, such as calomel (mercury chloride) and cinnabar (mercury sulfide), or aqueous phases of water, acid solutions, and chloride salt solutions. Any of these secondary phases of contaminants could eventually lead to failure of unlined containers made of mild steel. DOE will only accept elemental mercury that was generated in the U.S. and that meets one (or more) of the following criteria: (1) U151 coded waste, (2) D009 coded waste generated as a result of RMERC treatment technology, and/or (3) mercury that was previously treated to 99.5 vol% elemental mercury.

No secondary phases of contaminants, based on process knowledge developed in accordance with 40 CFR 262.11(d) or visual examination, as determined appropriate by the Operator(s) of the DOE-designated LTEMSEF, in coordination with their regulators, including solid and liquid phases, are acceptable for receipt at the DOE-designated LTEMSEF, ensuring compliance with compatibility requirements set forth in 40 CFR 264/265.172, and 49 CFR 173.24(c). Based on the operations that generate significant portions of the elemental mercury inventories that are anticipated to be transferred to the LTEMSEF, process knowledge is expected to be acceptable for characterizing the container contents to the extent required to treat, store, or dispose of the waste. Periodic validation via analysis and/or visual examination will be performed in accordance with the applicable regulations, described in 40 CFR 264.13, in consultation with the Operator(s) of the DOE-designated LTEMSEF, and in compliance with 40 CFR 268.7 to re-validate the basis for acceptable process knowledge.

5. Onsite Short-Term Storage by Ore Processors: Section 10(c) of the Chemical Safety Act of 2016 states that, if DOE is unable to accept elemental mercury for reasons beyond the control of the generator, ore processors who meet the applicable requirements specified therein “may accumulate the mercury produced onsite that is destined for a facility designated by the Secretary

[of Energy] under subsection (a) for more than 90 days without a permit issued under section 3005(c) of the *Solid Waste Disposal Act* (42 U.S.C. 6925(c)), and shall not be subject to the storage prohibition of section 3004(j) of that Act (42 U.S.C. 6924(j)).” 42 U.S.C.

6939f(g)(2)(D). Ore processors that elect to conduct onsite short-term storage of elemental mercury that is destined for the DOE-designated LTEMSEF will be subject to all RCRA regulations applicable to generators accumulating hazardous waste on site, as set forth in 40 CFR 262.17, with the exception of the accumulation times, which are specifically exempted in the Chemical Safety Act of 2016.

As previously discussed, DOE has not yet designated the LTEMSEF. Ore processors are the only generators granted exemption from the RCRA storage prohibitions and allowed to accumulate elemental mercury onsite beyond 90 days in non-permitted temporary storage. Based on the technologies used in the pollution control systems operated by the ore processors, the elemental mercury acceptable for short-term storage is typically generated via retorting (*i.e.*, RMERC). Accordingly, it is expected to exhibit a relatively high percent by volume of elemental mercury, although there is a potential for contaminants to be present as secondary phases in the containers. The revised guidance document includes changes to the 2019 Short-Term Storage Guidance by specifying the criteria for elemental mercury which DOE will accept and by adding emphasis to the requirements for compatible waste containers and compliance with the requirements of 40 CFR 264/265.172. The approach for ensuring compliance should be determined in consultation with and approval by the regulators for the affected ore processors.

### **C. Request for Comments**

DOE specifically seeks comment from potentially affected states - Arkansas, Illinois, Nevada, Pennsylvania, Tennessee, Texas, and Utah - which are analyzed as candidate storage locations in DOE’s 2022 Draft Supplemental Environmental Impact Statement (DOE/EIS-0423-S2D) and also invites the public, stakeholders, and other States to provide comments on this draft guidance document. DOE will accept comments via the methods prescribed above in the **ADDRESSES**

section. The Department will consider all comments received during the public comment period and modify the guidance document as appropriate. Any necessary follow-up consultation with EPA or State agencies in potentially affected States will be conducted in accordance with MEBA, 42 U.S.C. 6939f(d)(1).

*Confidential Business Information.* Pursuant to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email two well-marked copies: one copy of the document marked “confidential” including all the information believed to be confidential, and one copy of the document marked “non-confidential” with the information believed to be confidential deleted. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

### **Signing Authority**

This document of the Department of Energy was signed on April 27, 2023, by Kristen G. Ellis, Acting Associate Principal Deputy Assistant Secretary for Regulatory and Policy Affairs, Office of Environmental Management, pursuant to delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the *Federal Register*.

Signed in Washington, DC, on April 27, 2023.

**Treena V. Garrett,**  
*Federal Register Liaison Officer,*  
*U.S. Department of Energy.*

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